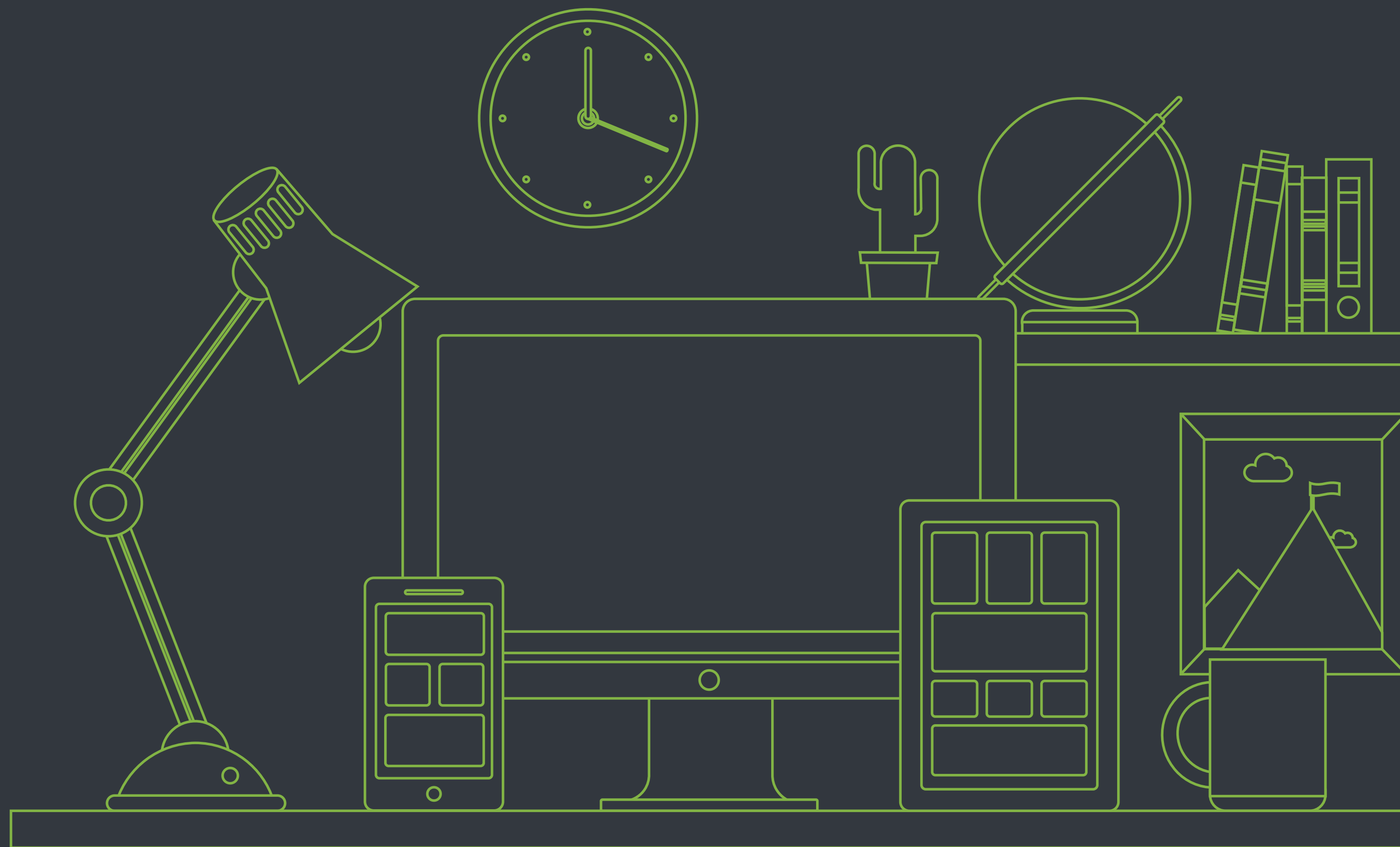


<https://aka.ms/vso-online>



VISUAL STUDIO  
CODESPACES

@rorypreddy



## AGENDA

1. WHAT IS VS ONLINE?

2. SECURITY

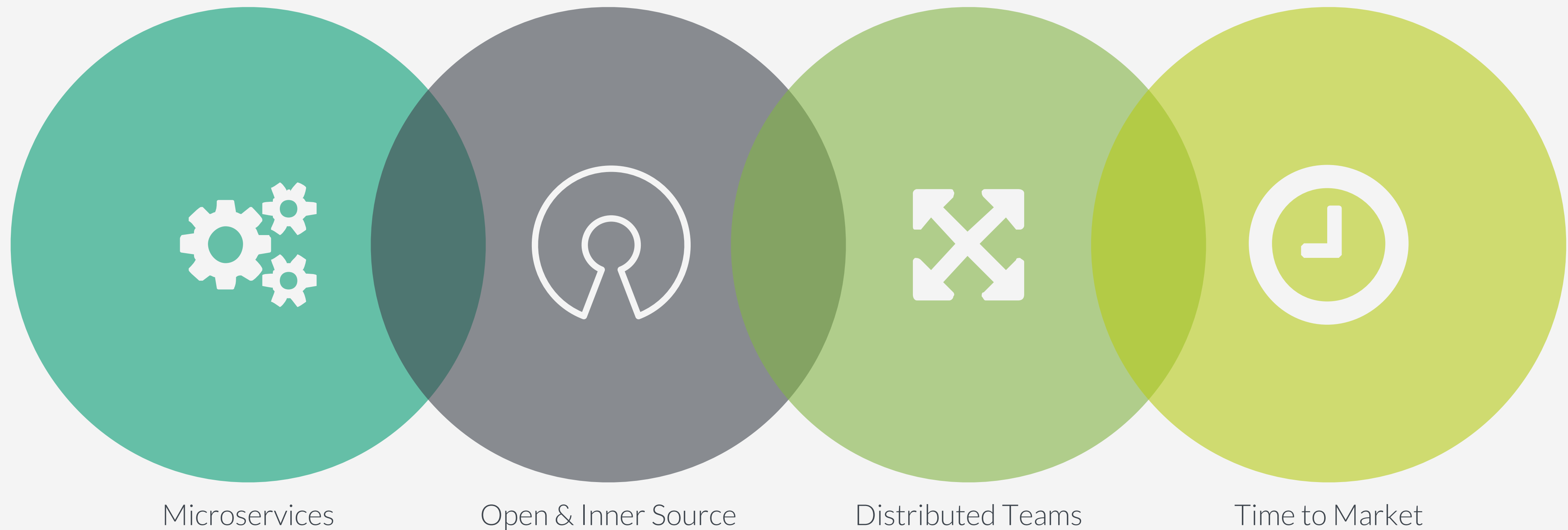
3. CONFIGURATION

4. PRICING

5. Demo

6. Roadmap

# TRENDS



# WHAT IS A DEV ENVIRONMENT?



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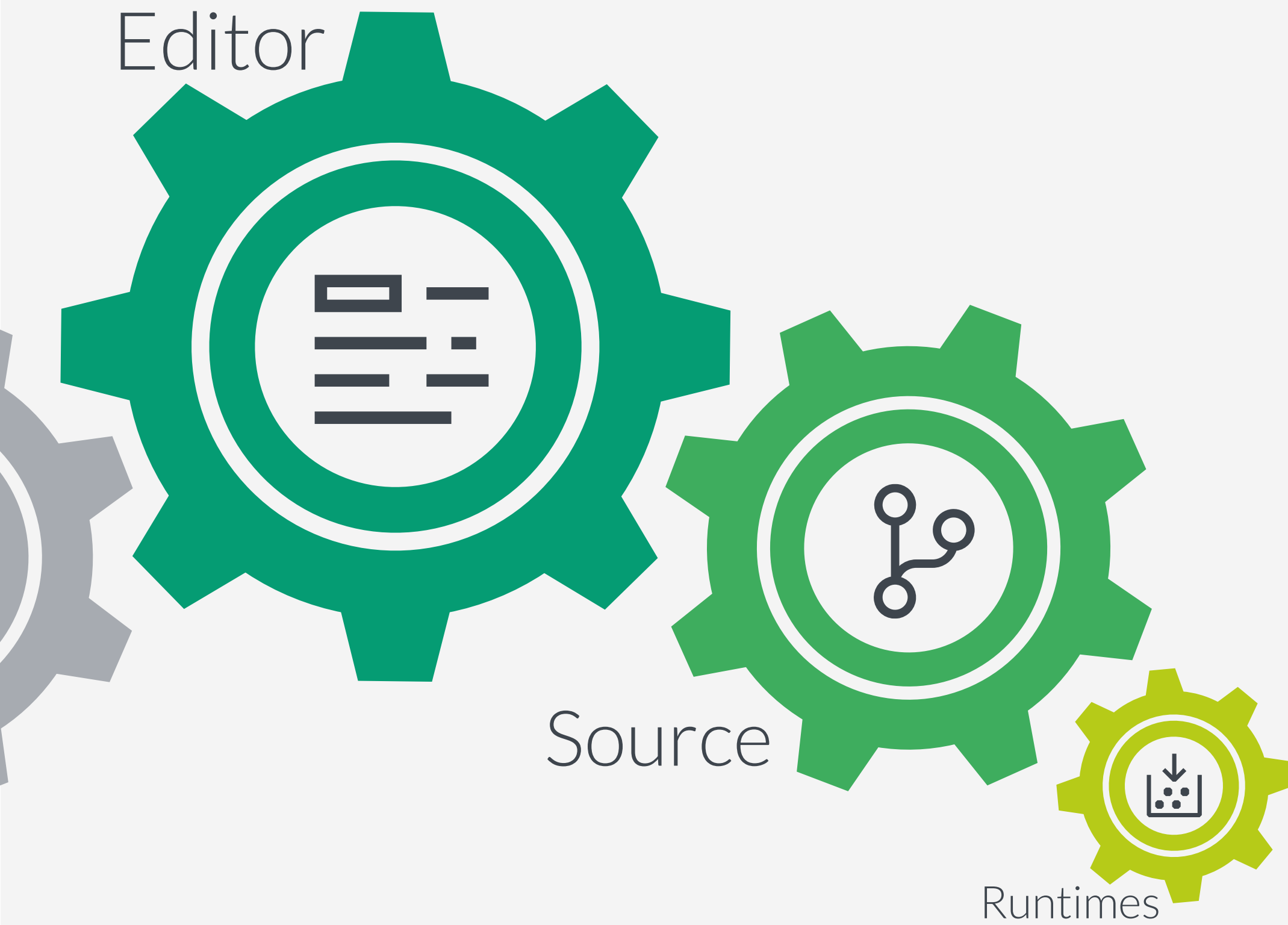
Editor



# WHAT IS A DEV ENVIRONMENT?



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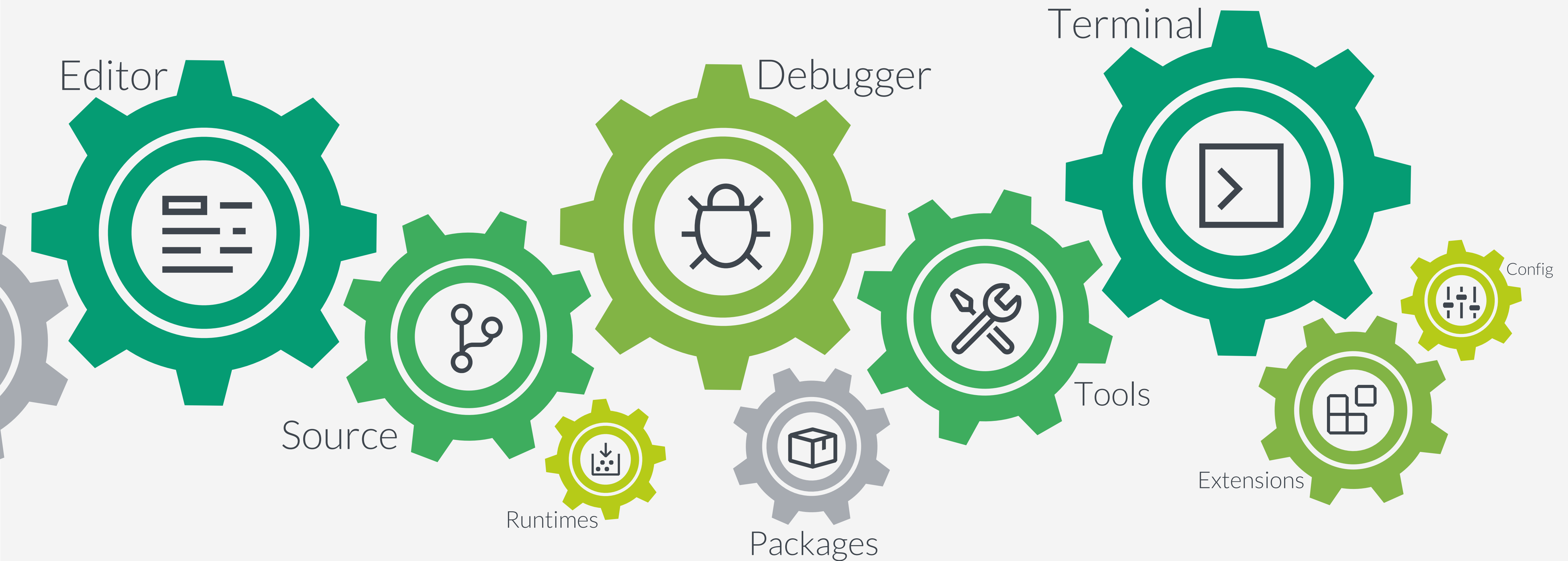
# WHAT IS A DEV ENVIRONMENT?



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# WHAT IS A DEV ENVIRONMENT?



# WHAT IS VS ONLINE?



## MANAGED ENVIRONMENTS FOR ANY PROJECT

Fully-managed, on-demand dev environments that dramatically reduce setup and maintenance



## FEEL AT HOME EVEN WHEN AWAY

Environment requirements are auto-detected, but can be configured, and your settings, themes, Git identity, and dotfiles are roamed so the experience looks and feels like local



## DEVELOP FROM ANYWHERE

Connect from anywhere: Visual Studio, Visual Studio Code, browser-based companion editor

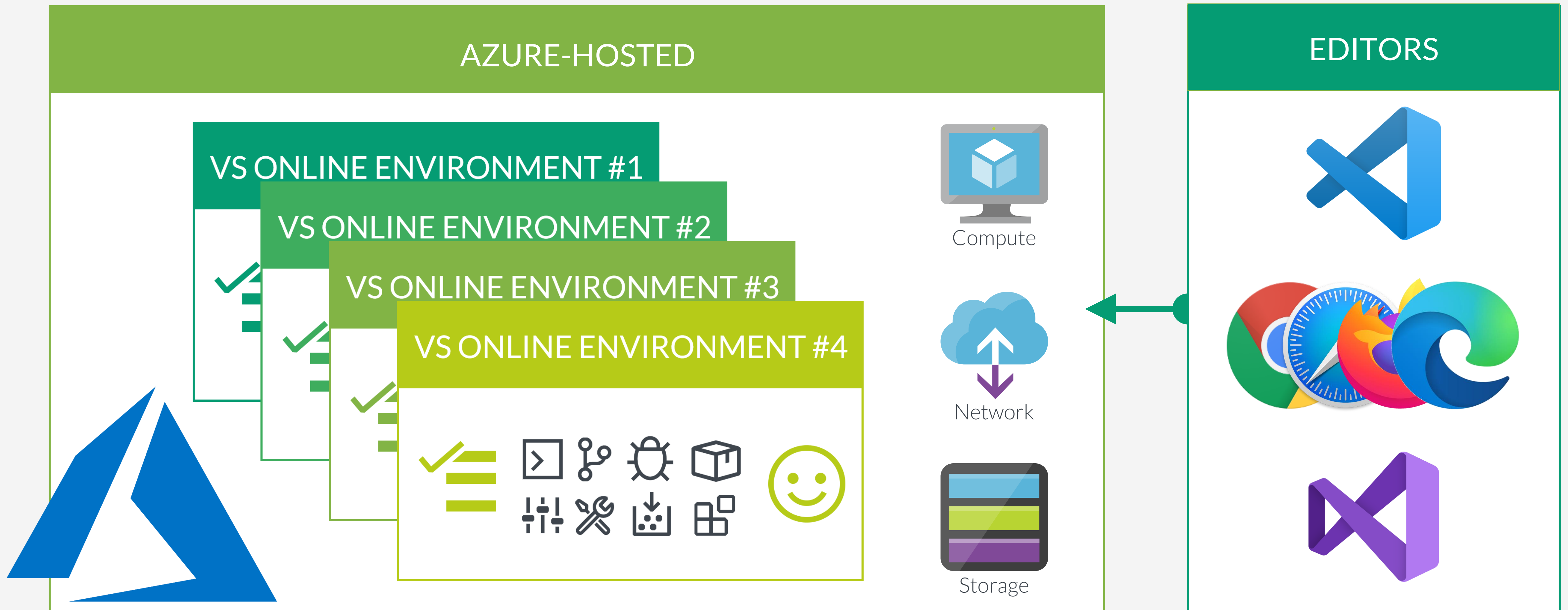


## SUPERCHARGED COLLABORATIVE DEVELOPMENT

Fully collaborative environment, complete with AI-assisted development support



# VISUAL STUDIO ONLINE



# VISUAL STUDIO ONLINE COMPUTE

1

## AZURE HOSTED

Environments are hosted in Azure, the [most trusted cloud](#).

1

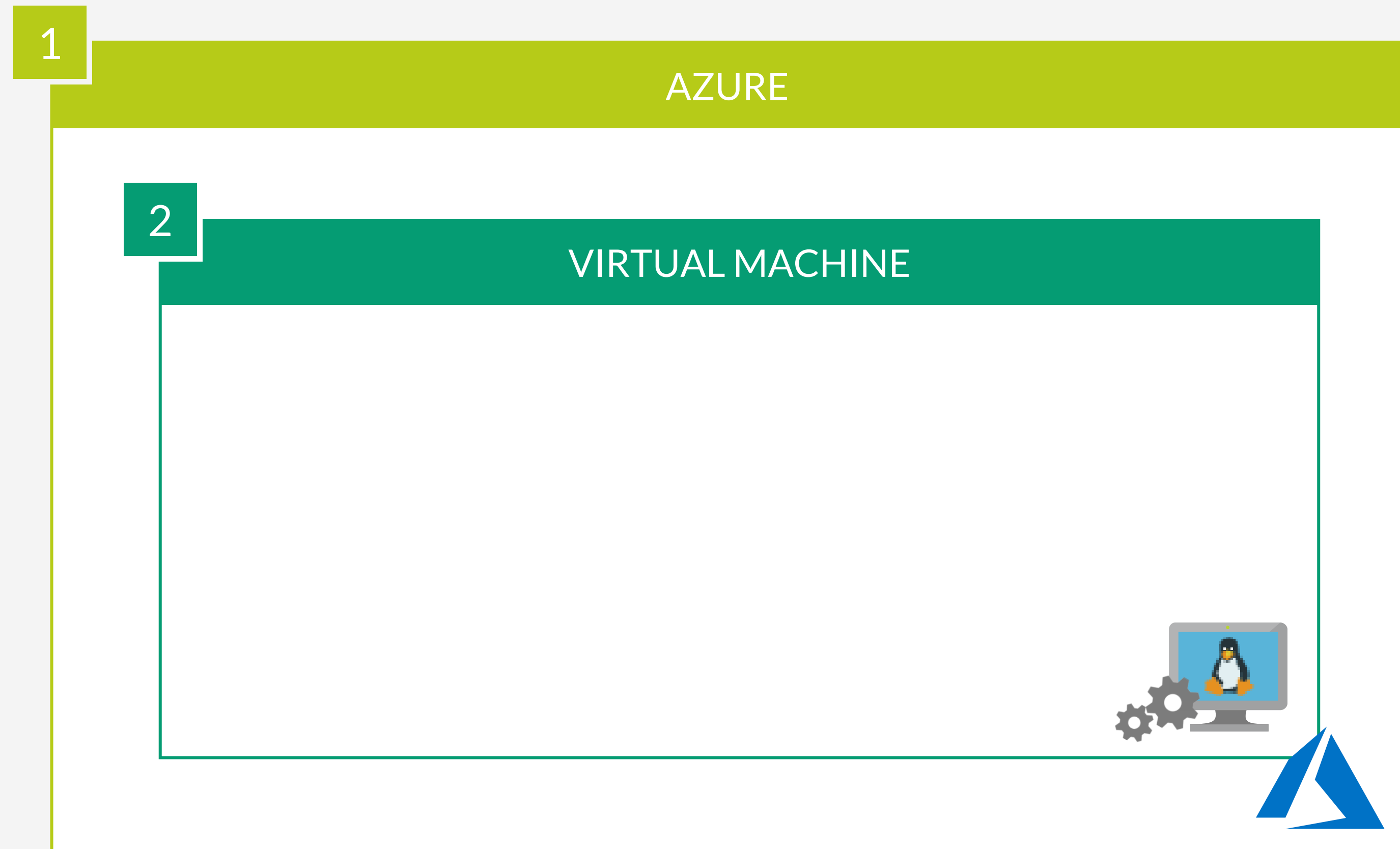
AZURE





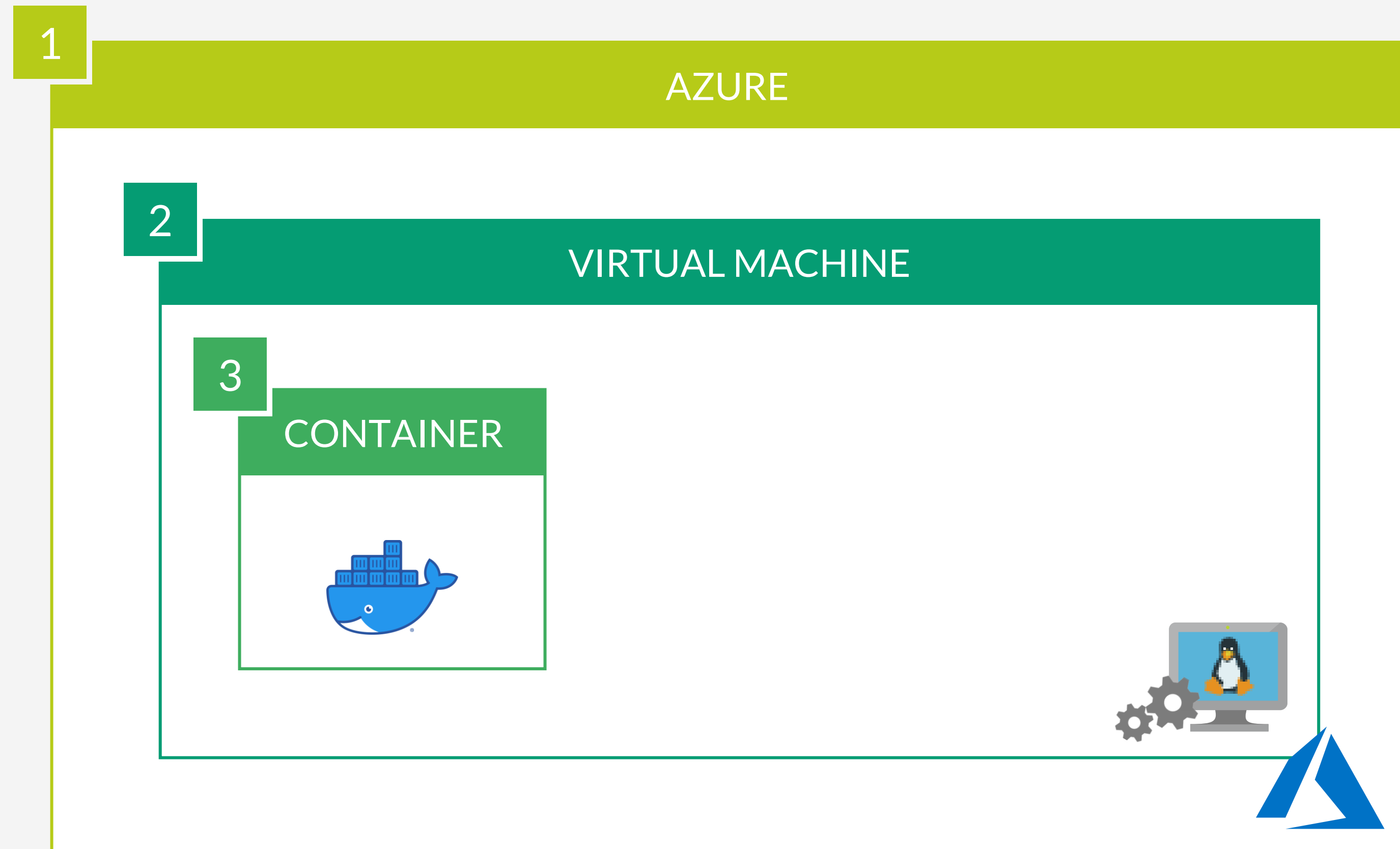
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Environments are hosted in Azure, the most trusted cloud.
- 2 VIRTUAL MACHINE ISOLATION**  
Each environment runs on a dedicated VM which is automatically suspended and deleted when not in use to reduce costs.



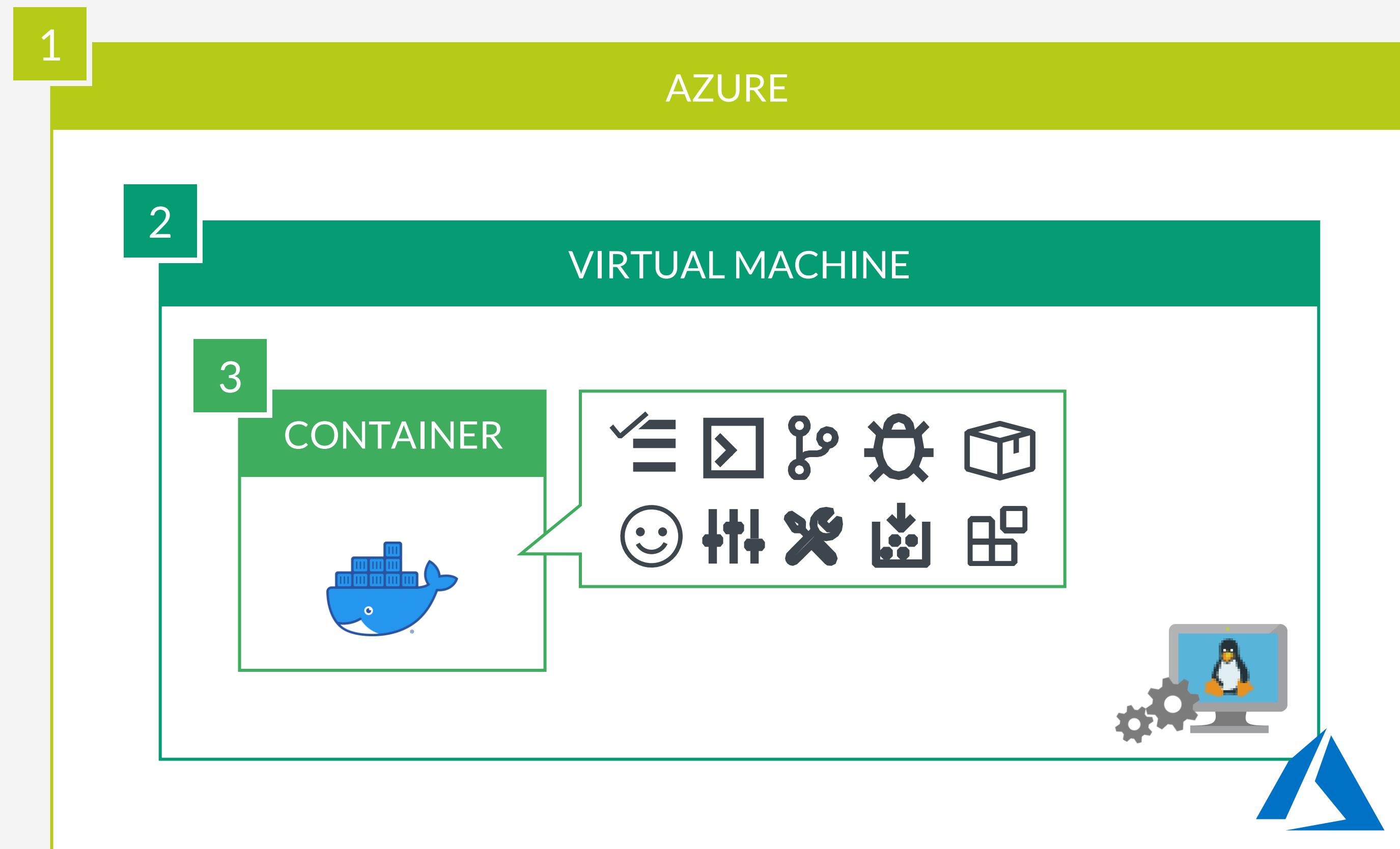
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Environments run in containers based on our [default image](#), or [your own custom Dockerfile or image](#).



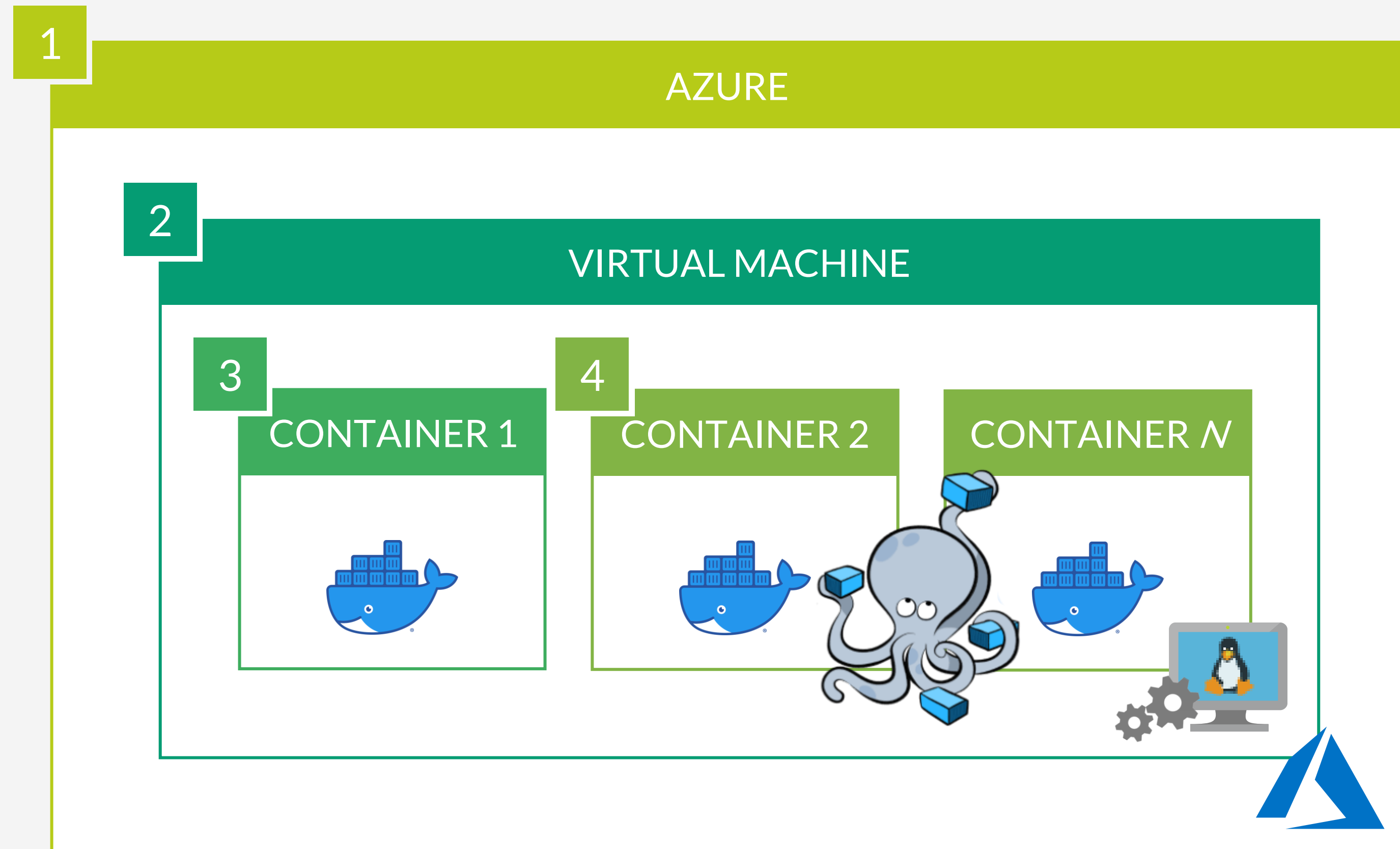
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- 3 ENVIRONMENT CUSTOMIZATION**  
Environments run in containers based on our [default image](#), or [your own custom Dockerfile or image](#).
- 4 COMPOSED ENVIRONMENTS**  
Compose together complex development environments with [Docker Compose](#) support.\*

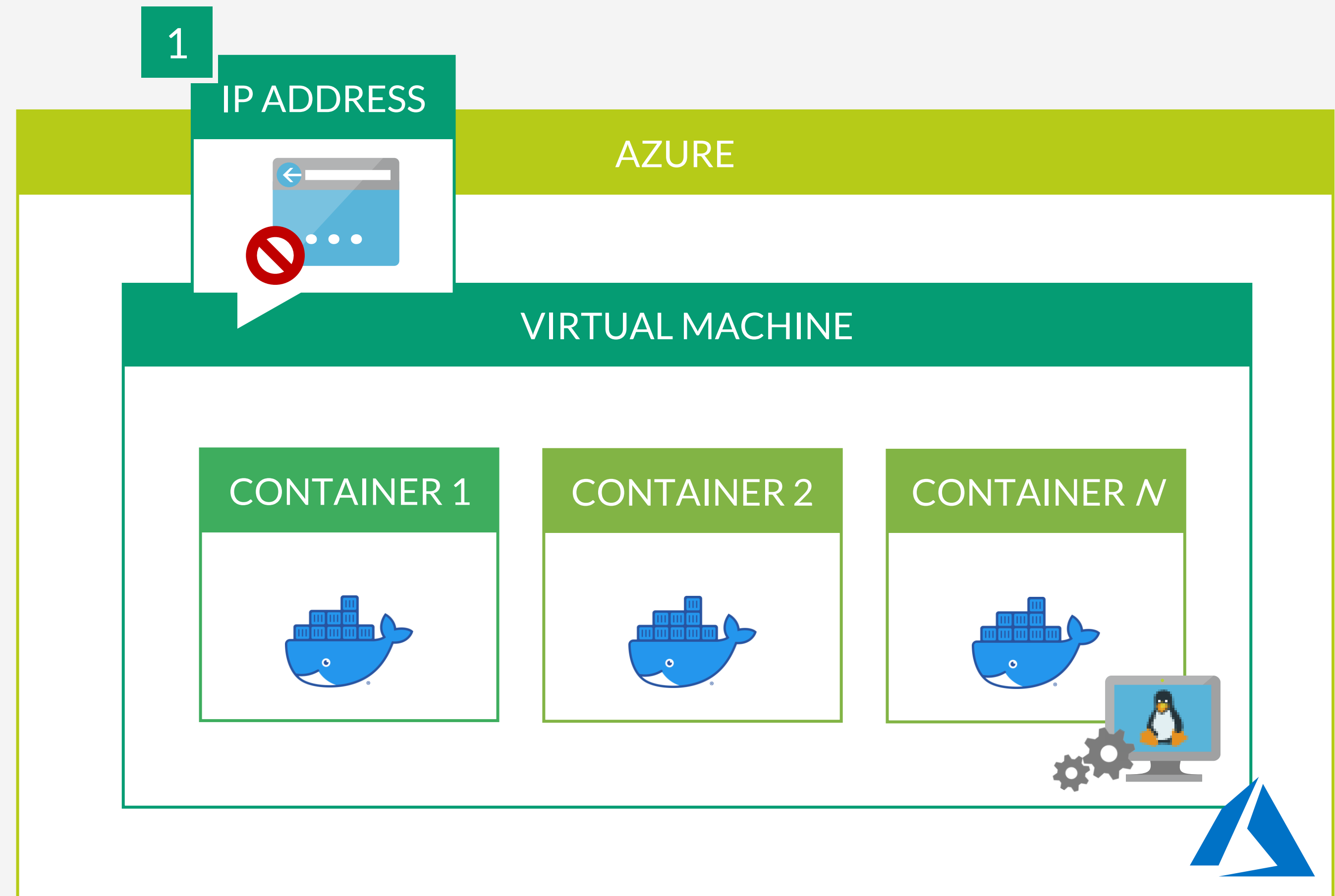


# VISUAL STUDIO ONLINE NETWORK

1

## NO PUBLIC IP ADDRESS

Environments are not addressable via a public IP.



# VISUAL STUDIO ONLINE NETWORK

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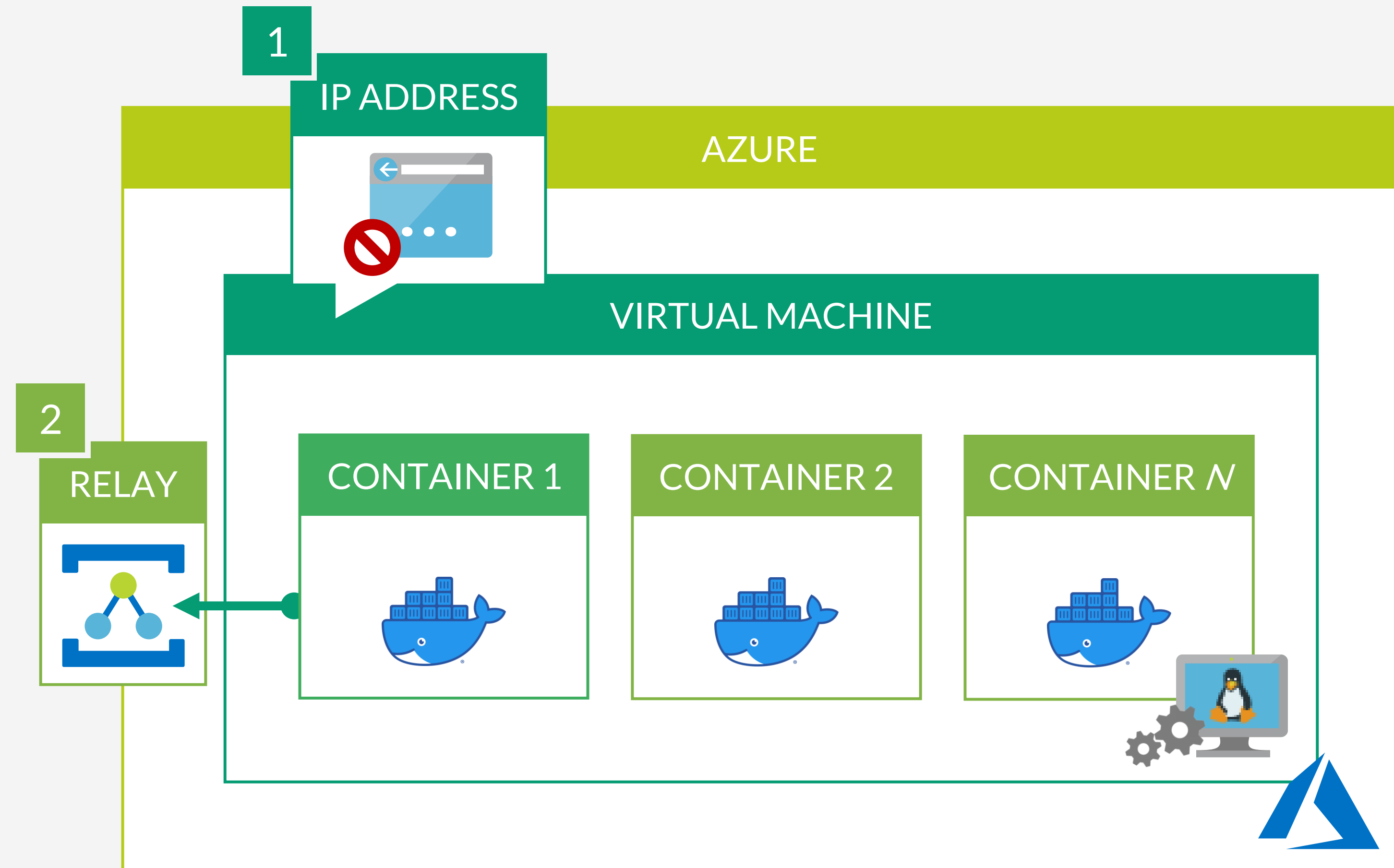
Environments are not addressable via a public IP.

2

## NO INBOUND TRAFFIC

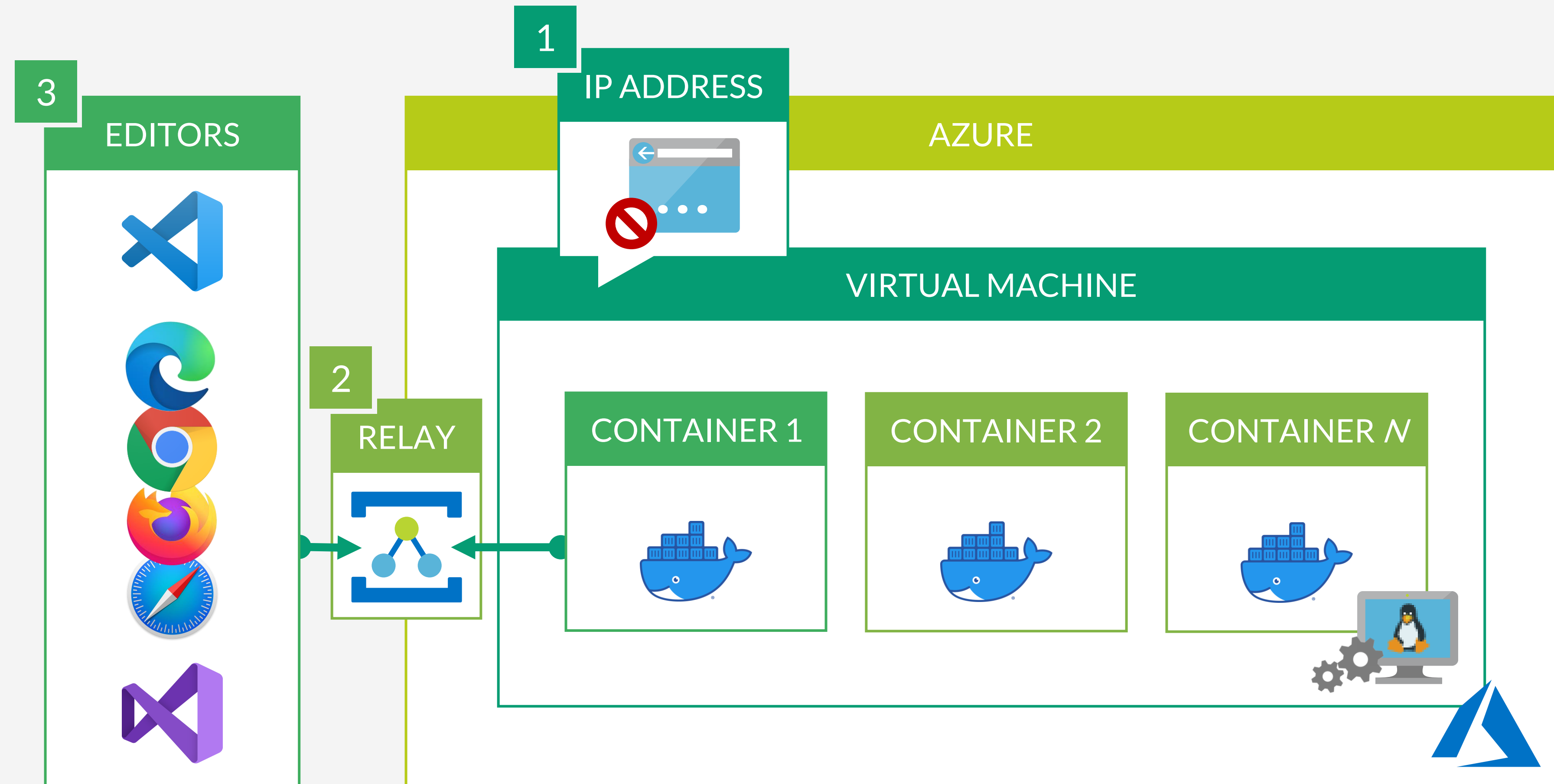
Environments make outbound-only connections to [Azure Relay](#) and are:

- ✓ End-to-end Encrypted
- ✓ Authenticated
- ✓ Authorized



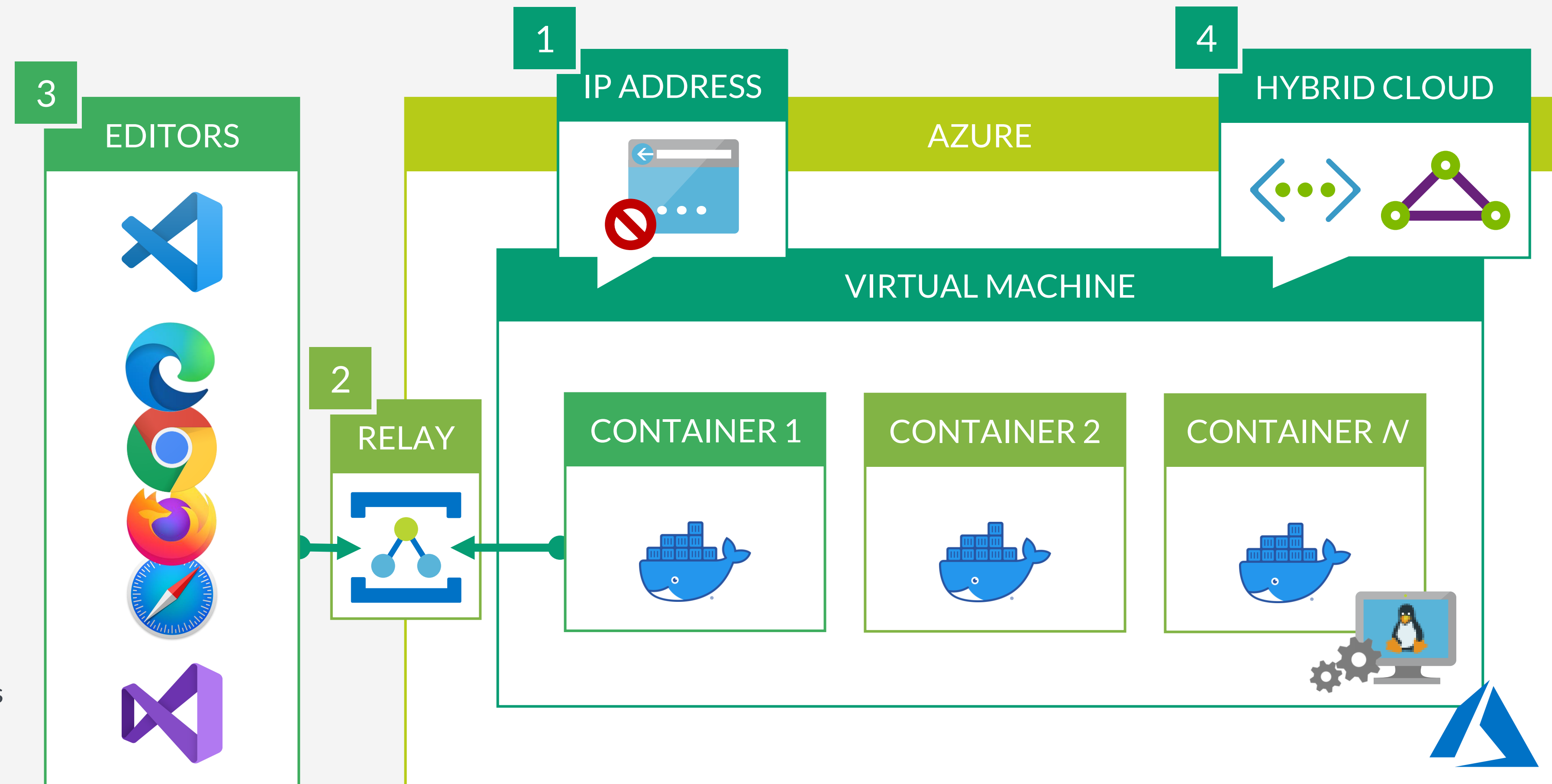
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Clients also leverage Azure Relay to eliminate intrusive changes to firewall and network infrastructure.



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- 3 CONNECTED CLIENTS**  
Clients also leverage Azure Relay to eliminate intrusive changes to firewall and network infrastructure.
- 4 HYBRID CLOUD**  
Private [virtual networks](#) and connections (via [ExpressRoute](#)).





# VISUAL STUDIO ONLINE STORAGE

1

## SOURCE OF TRUTH

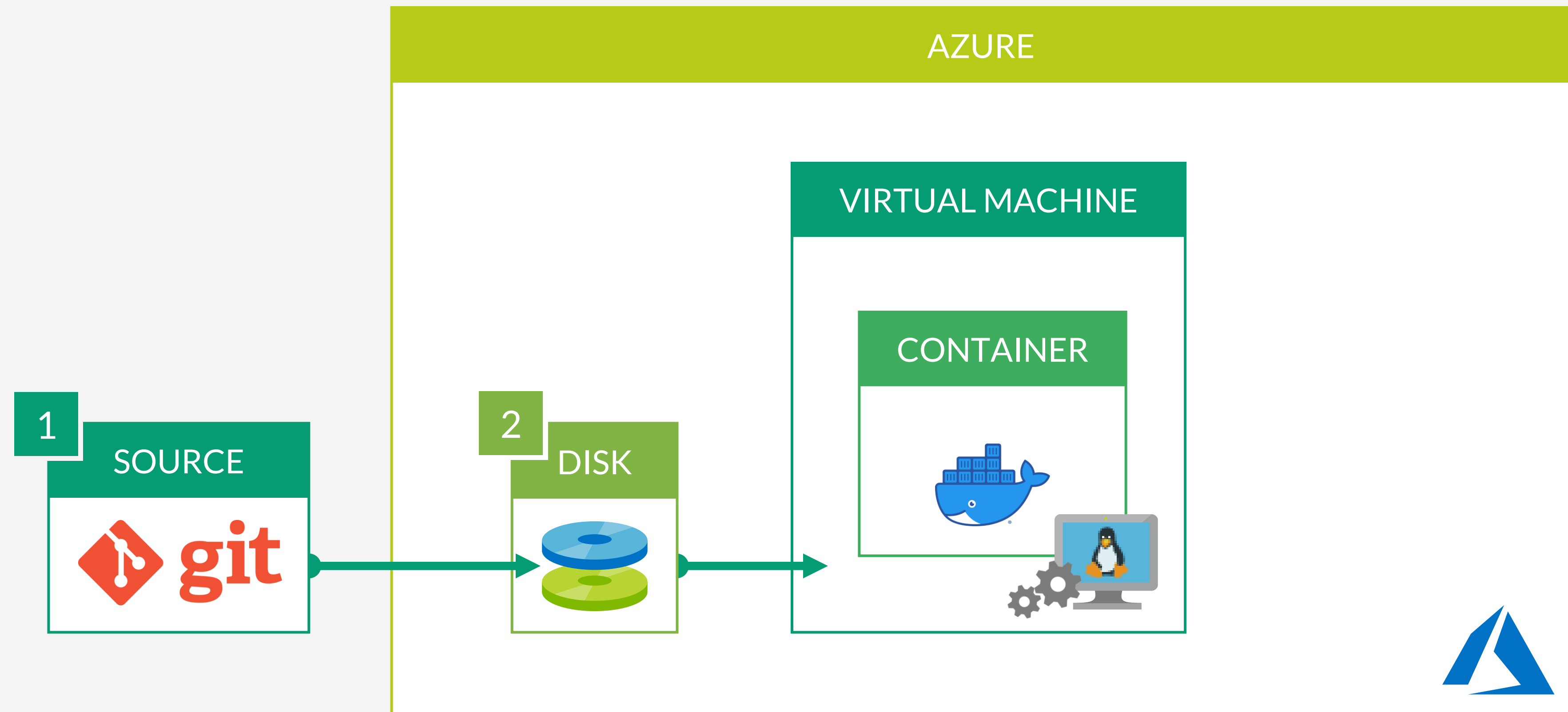
VS Online leverages existing [Git](#) repositories as the source of truth.



# VISUAL STUDIO ONLINE STORAGE

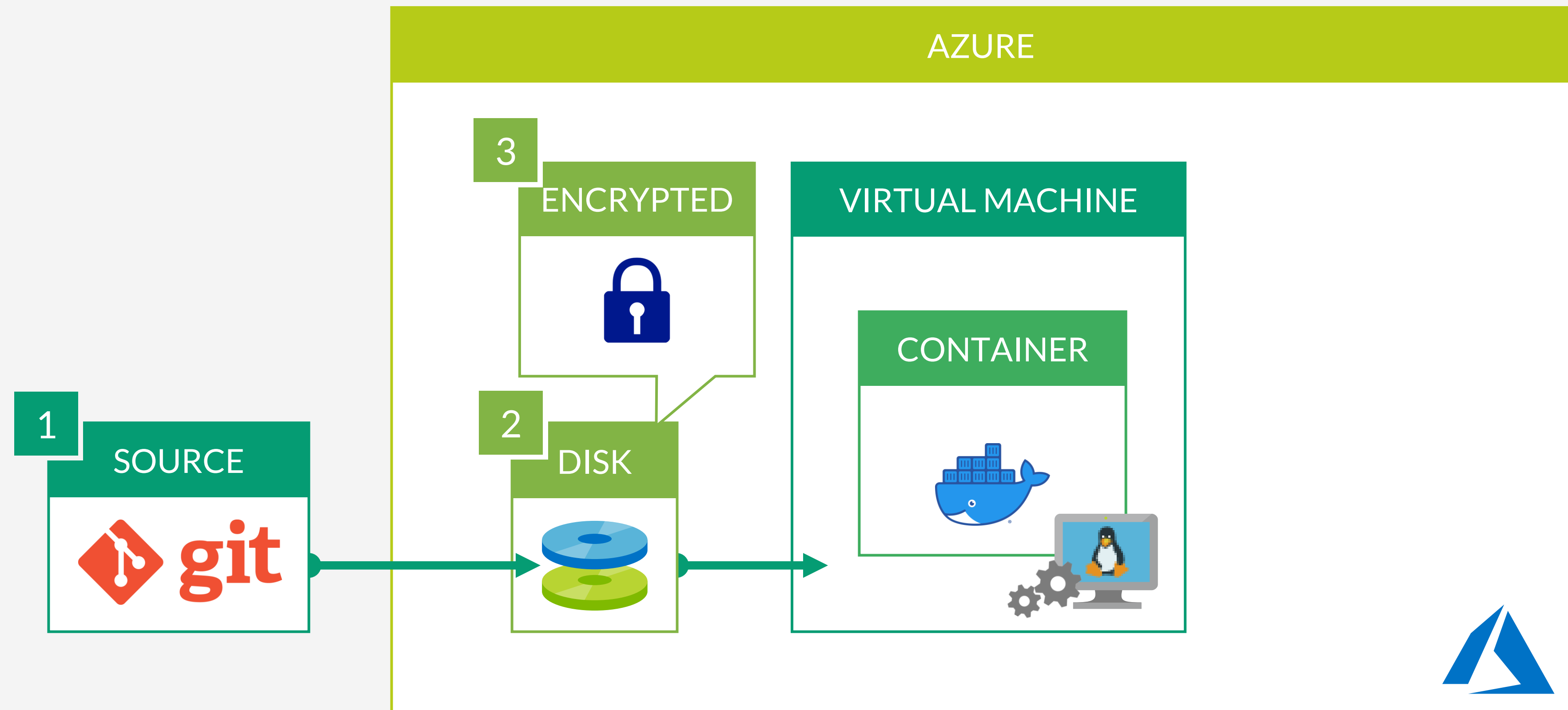
**1 SOURCE OF TRUTH**  
VS Online leverages existing [Git](#) repositories as the source of truth.

**2 DEDICATED STORAGE**  
Each environment runs in its own dedicated and isolated storage account, which is mounted to the VM when active.



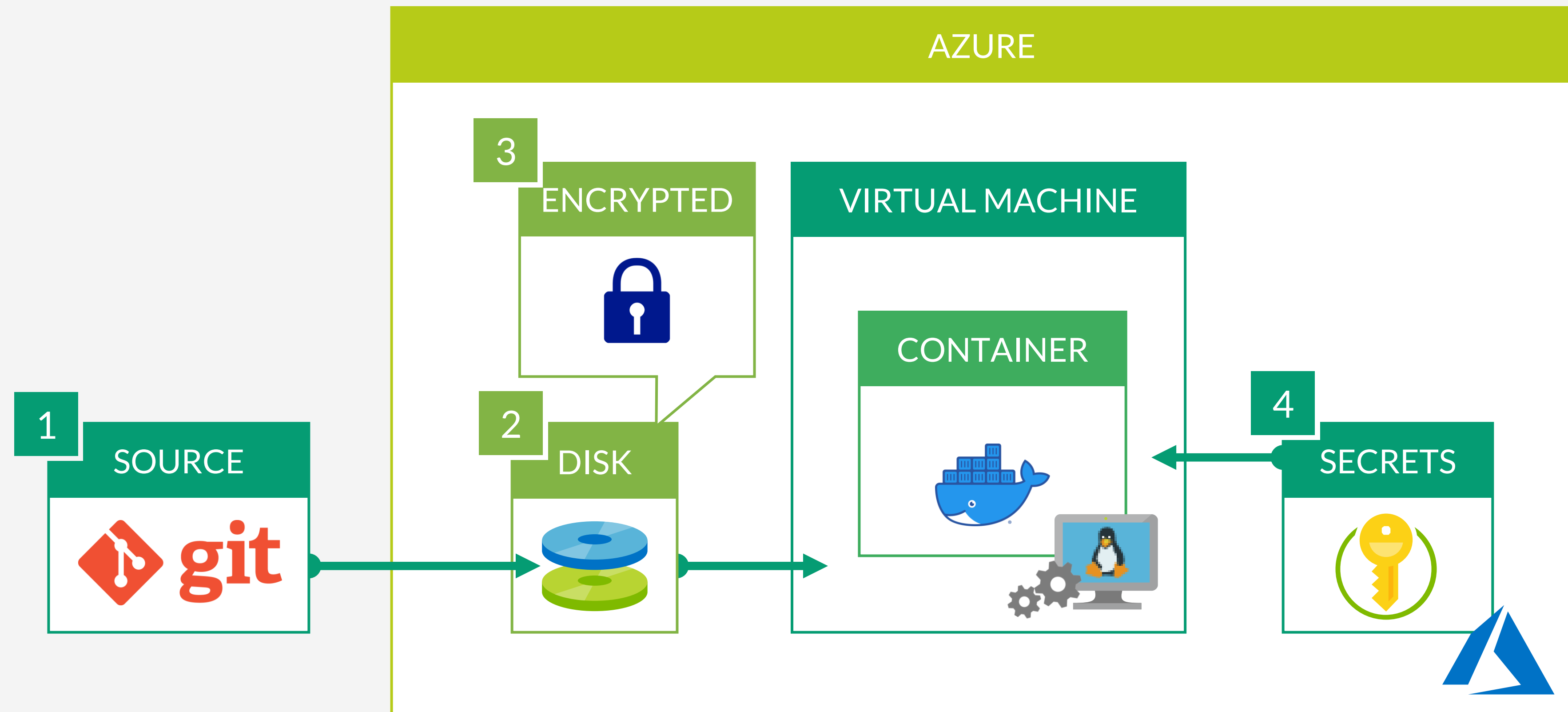
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Environment [storage is encrypted](#) with Microsoft managed keys to protect data.



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- 3 ENCRYPTED AT REST**  
Environment [storage is encrypted](#) with Microsoft managed keys to protect data.
- 4 SAFEGAURDED SECRETS**  
Configured variables and keys are stored within [Azure Key Vault](#) and exposed within the container.\*



# VISUAL STUDIO ONLINE PERMISSIONS

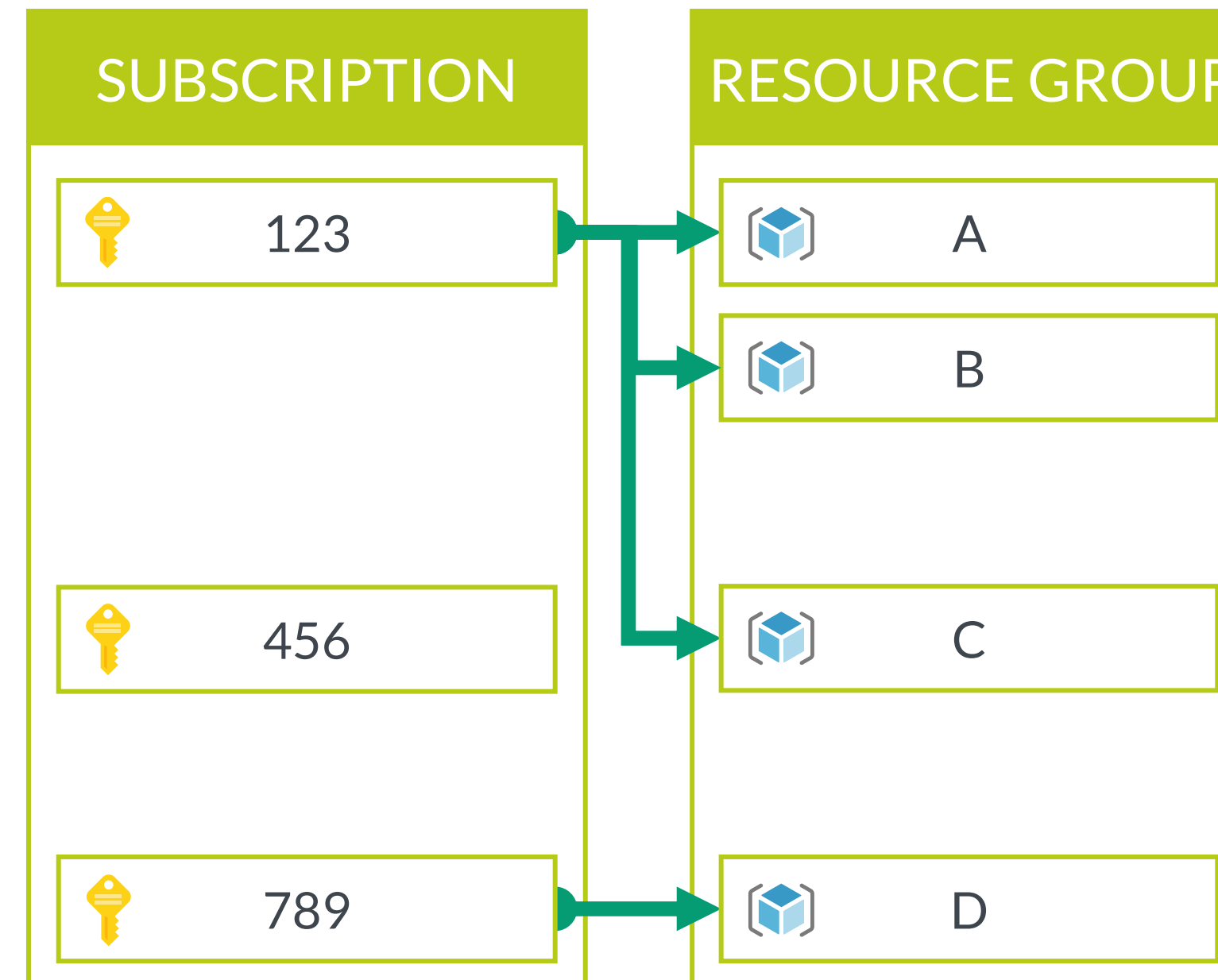
1

## FLEXIBLE ORGANIZATION

Use [Azure Subscriptions and Resource Groups](#) to organize across cost centers, divisions and users.

1

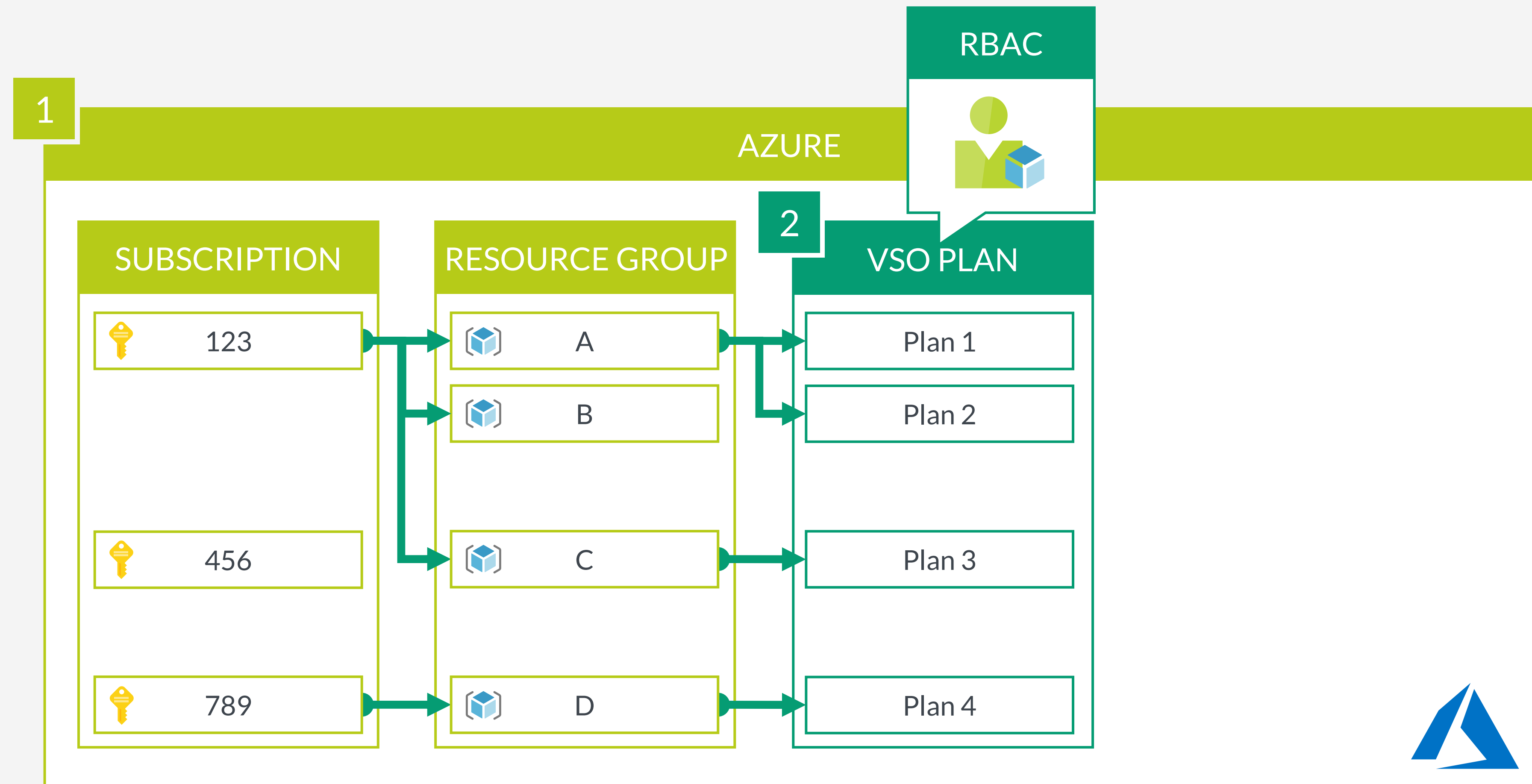
AZURE



# VISUAL STUDIO ONLINE PERMISSIONS

**1 FLEXIBLE ORGANIZATION**  
Use [Azure Subscriptions and Resource Groups](#) to organize across cost centers, divisions and users.

**2 CONTROL WITH PLANS**  
[VS Online Plans](#) group environments together to allow simple role-based access control and policy enforcement.\*

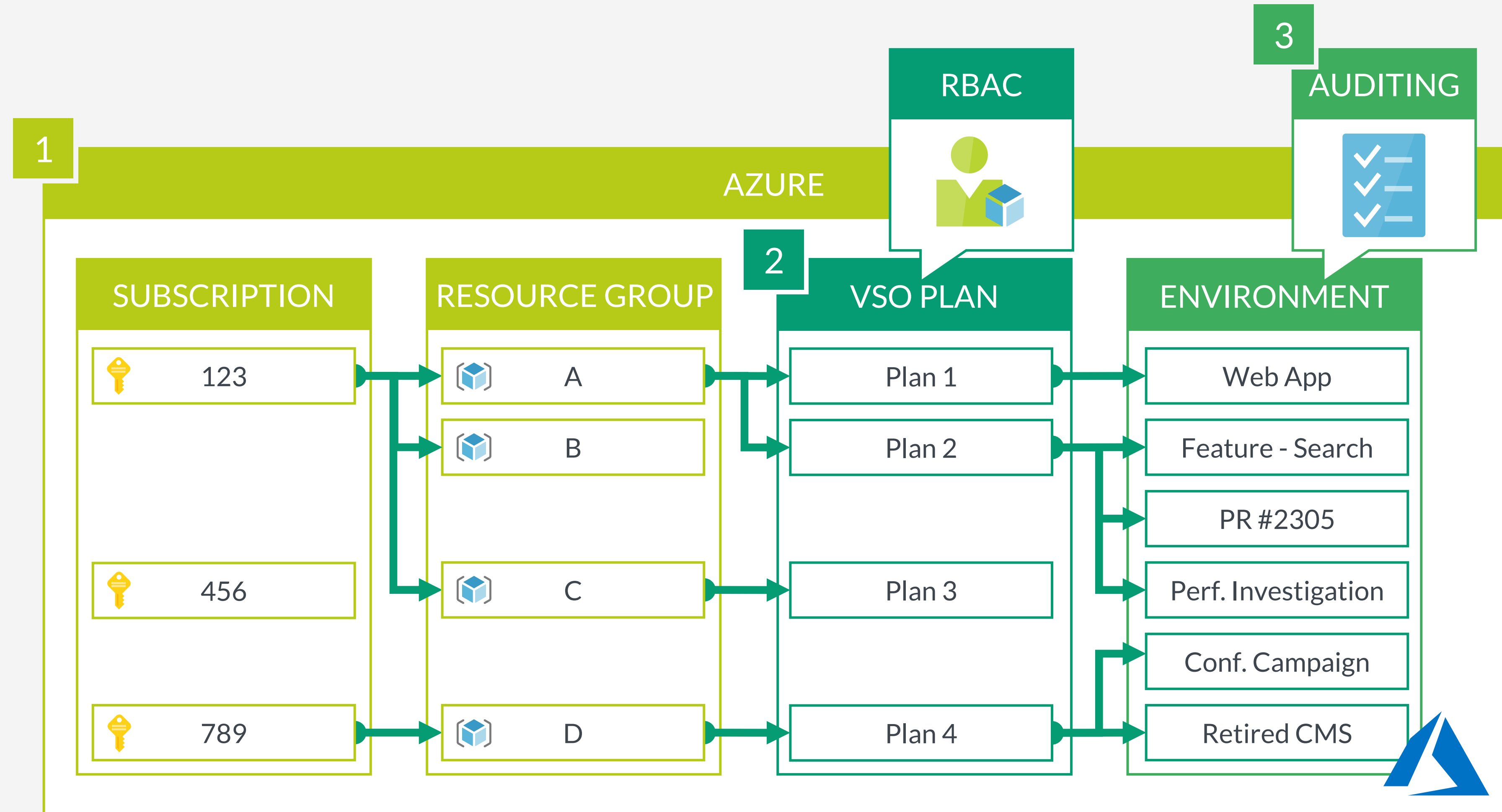


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**2 CONTROL WITH PLANS**  
[VS Online Plans](#) group environments together to allow simple role-based access control and policy enforcement.\*

**3 AUDIT LOGS**  
Creation, deletion and access to environments is logged for increased transparency.\*



# VISUAL STUDIO ONLINE CONFIG

1

## "GIT-OPS"

Configuration is versioned in Git. Git credentials are proxied from the client machine, not stored in the environment.

1

SOURCE



ENV CONFIG





# VISUAL STUDIO ONLINE CONFIG

1

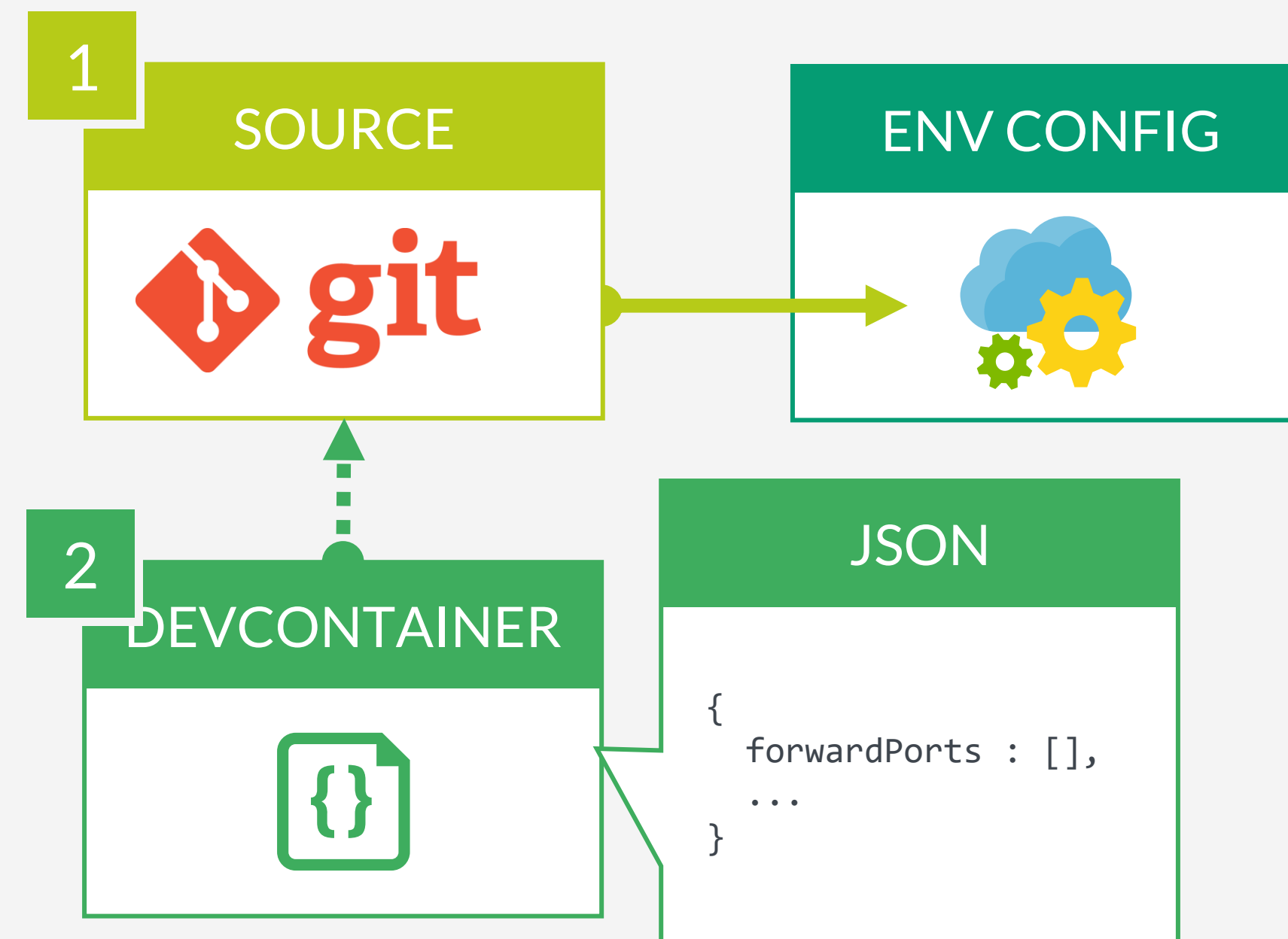
## "GIT-OPS"

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2

## SECURE BY DEFAULT

[Configure devcontainer.json](#) to expose ports to client machine and customize environment container/user.



# VISUAL STUDIO ONLINE CONFIG

1

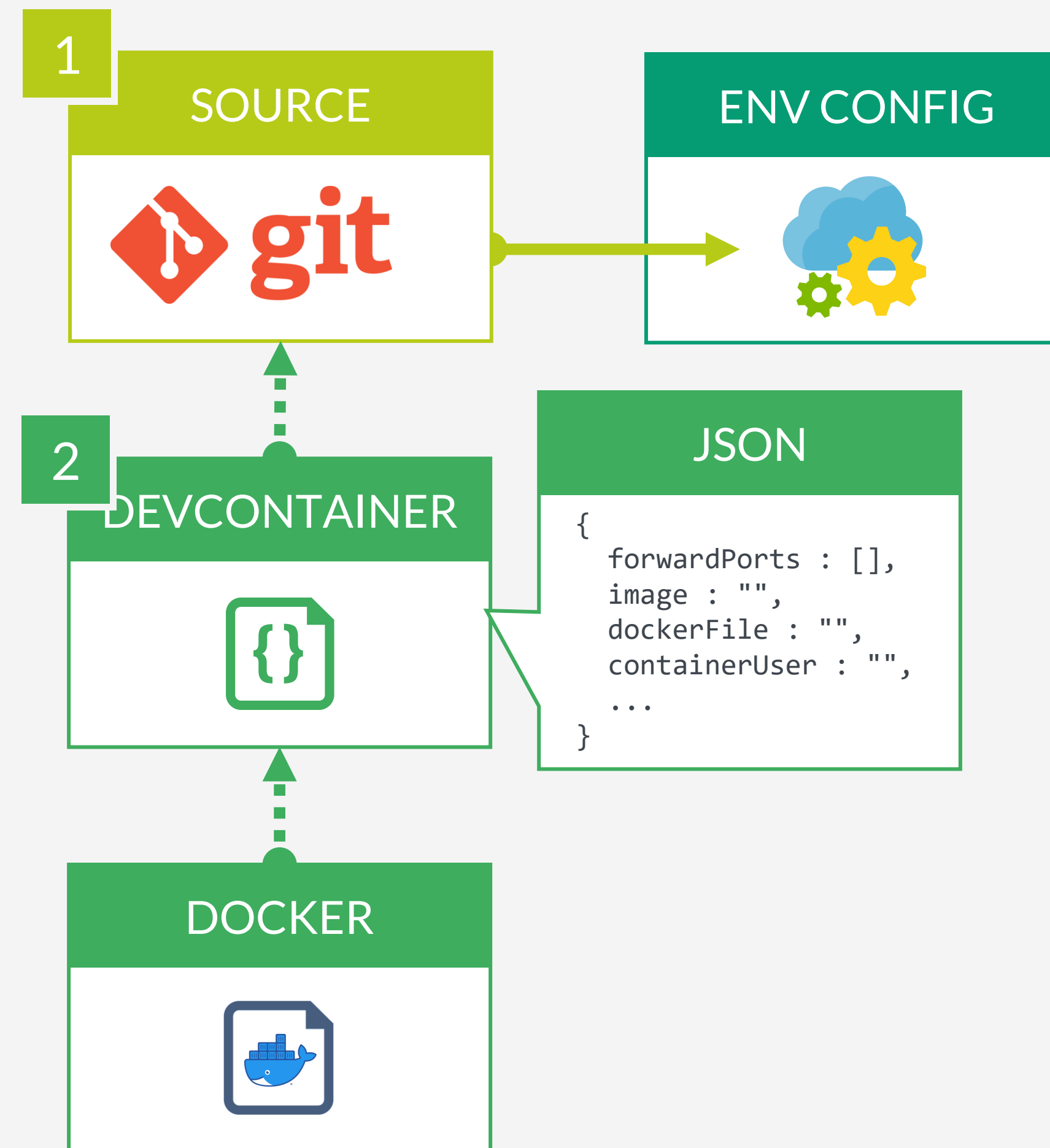
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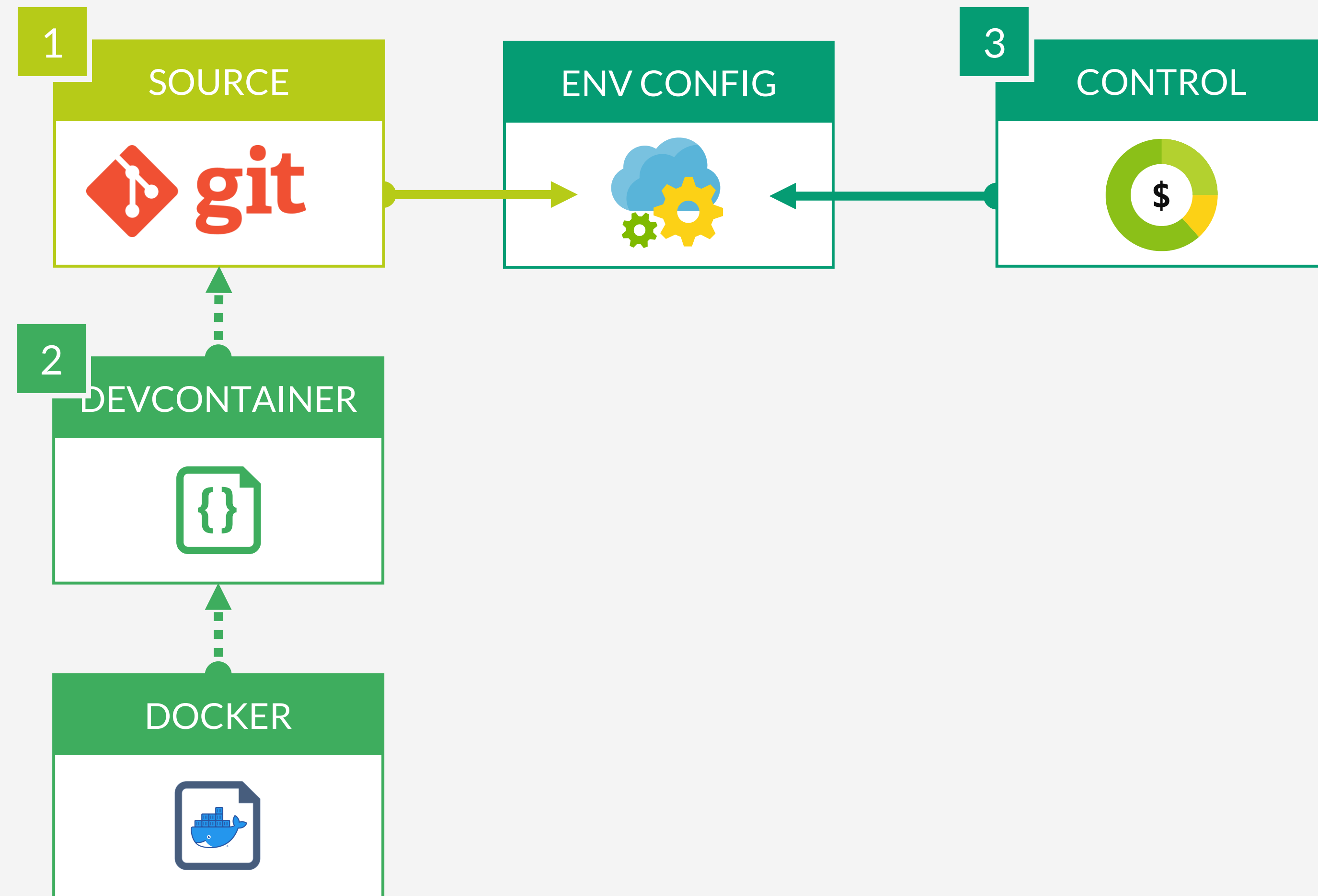
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3

## COST CONTROL

Select the virtual machine (Basic, Standard, Premium or GPU) and the auto-suspension policy per environment.



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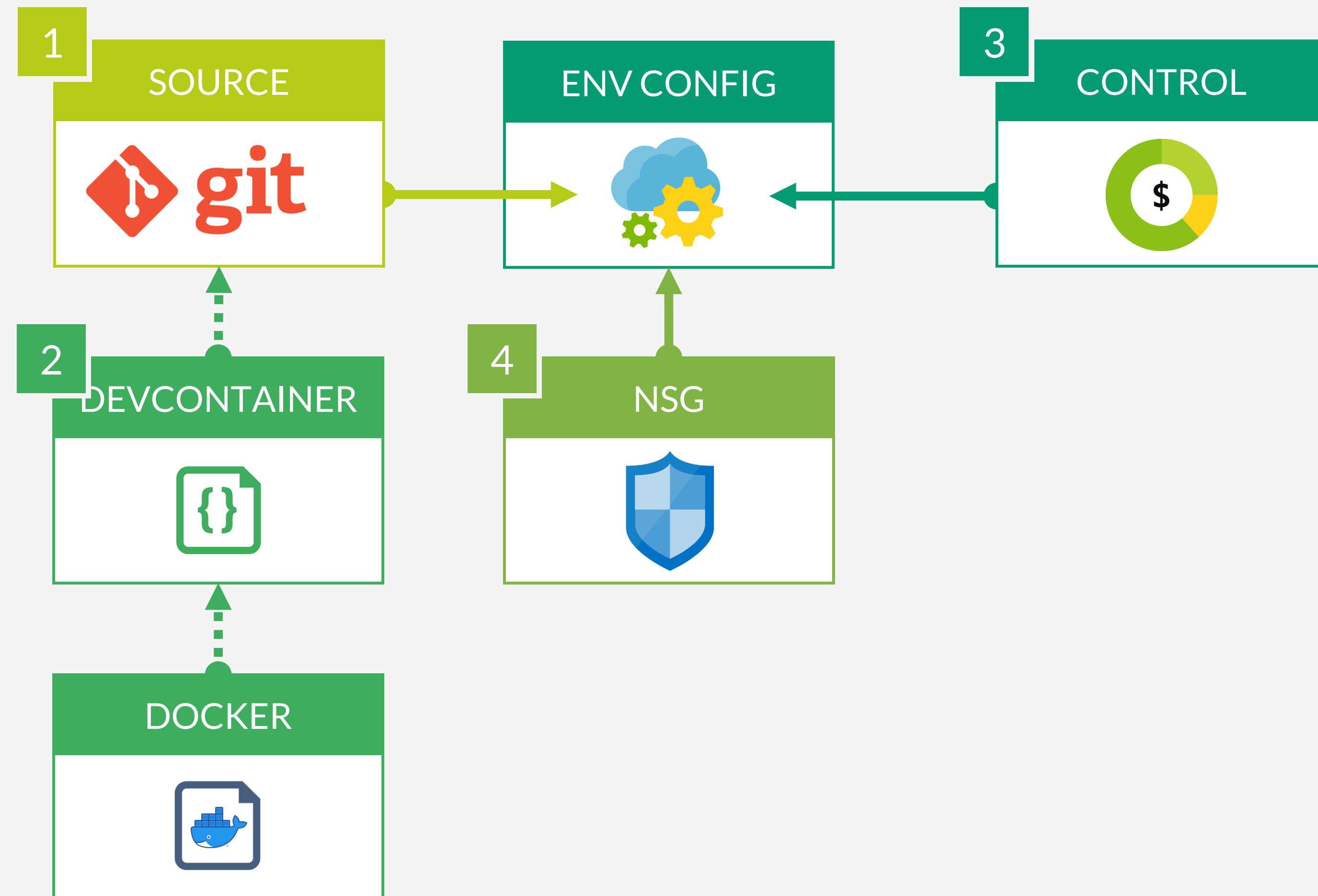
## COST CONTROL

Select the virtual machine (Basic, Standard, Premium or GPU) and the auto-suspension policy per environment.

4

## NETWORK SECURITY GROUP

Filter outbound network traffic by destination, protocol or port.\*



# VISUAL STUDIO ONLINE GEOGRAPHIES



# VISUAL STUDIO ONLINE PRICING

## INSTANCE TYPES / HR

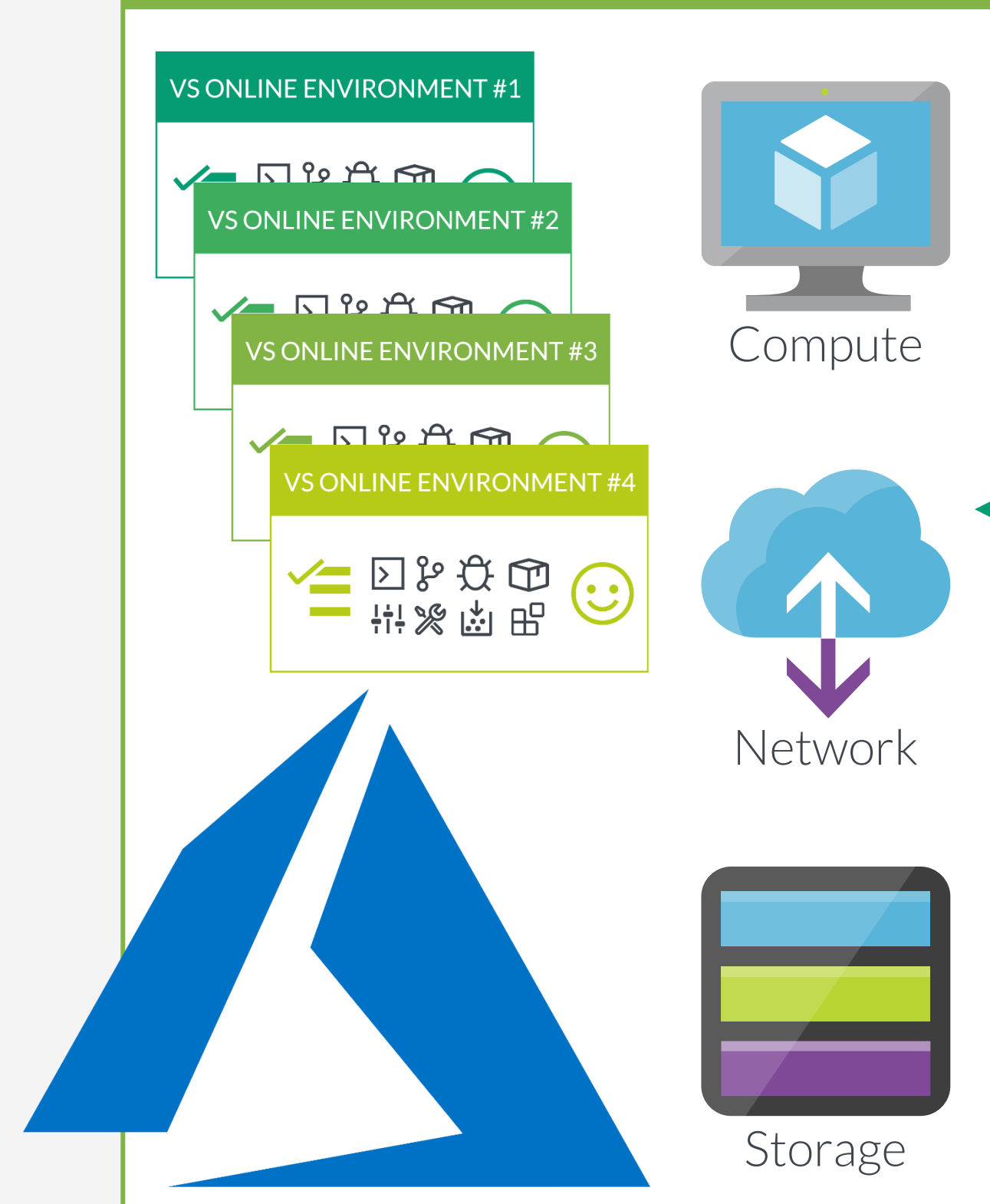
**25**  
¢ **BASIC**  
CORES: 2  
RAM: 4 GB  
DISK: 64 GB SSD

**46**  
¢ **STANDARD**  
CORES: 4  
RAM: 8 GB  
DISK: 64 GB SSD

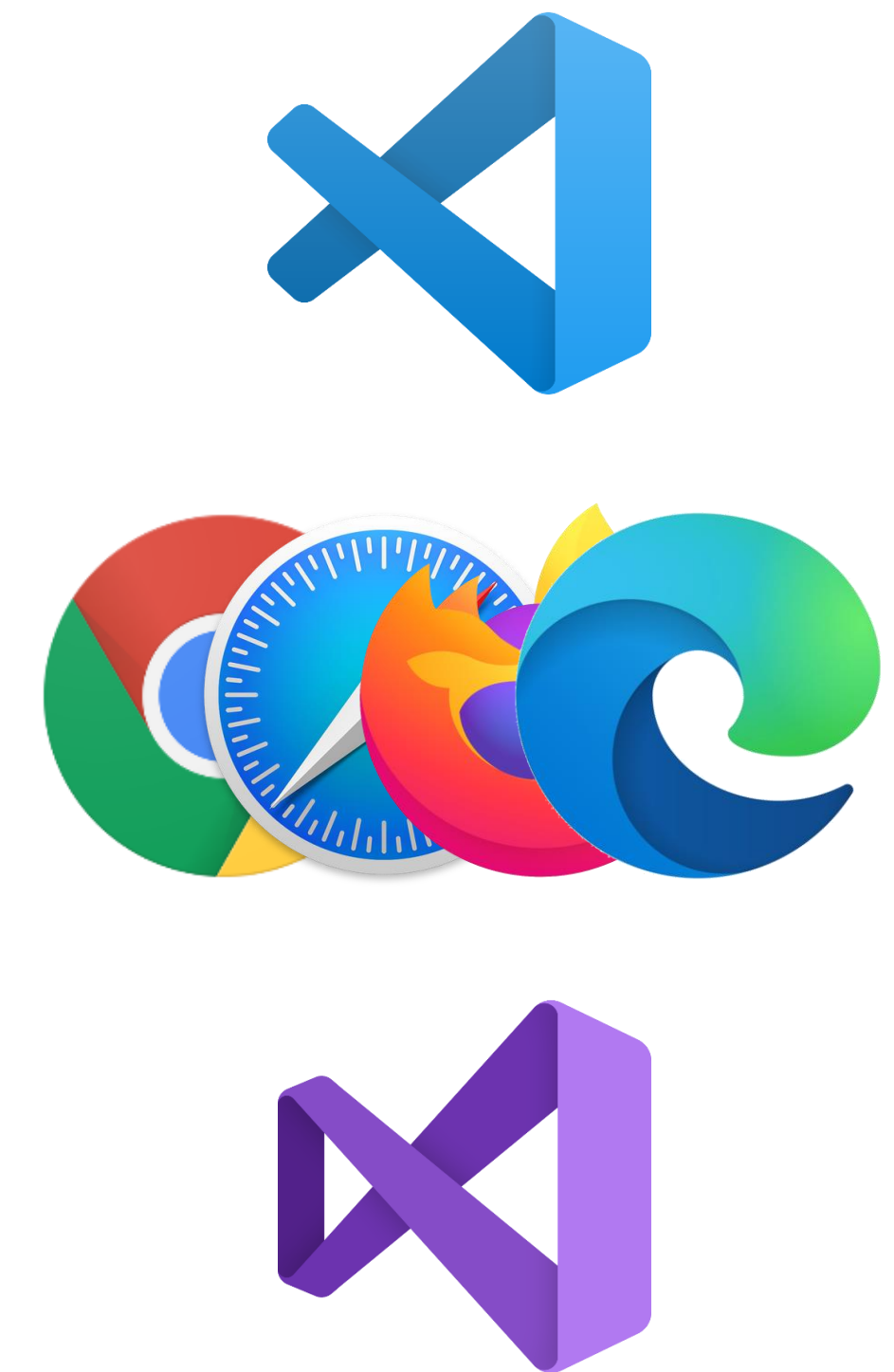
**88**  
¢ **PREMIUM**  
CORES: 8  
RAM: 16 GB  
DISK: 64 GB SSD

**2.75**  
\$ **GPU\***  
CORES: 6  
RAM: 56 GB  
GPU: 1 w/ 12 GB  
DISK: 64 GB SSD

## AZURE-HOSTED



## EDITORS



# DEMO



## DEMO

1. SETUP + GITHUB
2. LOCAL ENVIRONMENT
3. DEVCONTAINER
4. CODESPACES

# ROADMAP



- Basic & GPU instances
- Sharable Plans
- Docker Compose support
- Secrets management
- VS Code Settings sync

- Windows environments\*
- VS IDE support\*

- General availability
- Offline environments
- Retention policies
- vNet Support
- Audit logging

- Windows environments\*
- VS IDE support\*





# QUESTIONS

LEARN MORE

<https://aka.ms/vso-online>